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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/806,460 | 03/23/2004 | Martin Dieterle | 248731US0 | 1228 |

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EXAMINER

PUTTLITZ, KARL J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1621 | |

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/806,460 | DIETERLE ET AL. | |
| | Examiner | Art Unit | |
| | Karl J. Puttlitz | 1621 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Arrangement of the Specification

Applicant is requested to conform the Specification to the requirements set forth in M.P.E.P. § 608.01(a) and 37 C.F.R. 1.77 for arrangement of applications.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the term "conducting a starting reaction gas mixture" is confusing.

It is unclear in claim 1 if the term "whose active composition" refers to zone A or zone B.

The terms "the overall fixed catalyst bed" and "the selectivity of acrylic acid formation" in claim 1 lack antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,403,829 to Unverricht et al. (Unverricht) in view of EP 1106598, as evidenced by counterpart U.S. patent No. 6,620,968 to Lonzetta et al. (Lonzetta).

The claims of the application are drawn to, inter alia, a process for partially oxidizing acrolein to acrylic acid in the gas phase under heterogeneous catalysis by conducting a starting reaction gas mixture which comprises acrolein, molecular oxygen and at least one inert gas containing at least 20 % by volume of molecular nitrogen and contains molecular oxygen and the acrolein in a molar O₂:C₃H₄O ratio of greater than or equal to 0.5 in one reaction stage over a fixed catalyst bed which is arranged in two spatially successive reaction zones A,B, the temperature of reaction zone A being a temperature in the range of 230 to 320 C and the temperature of reaction zone B likewise being a temperature in the range from 230 to 320 C, whose active composition is at least one multimetal oxide comprising the elements Mo and V, in such a way that reaction zone A extends to an acrolein conversion of ranging from 45 to 85 mol % and, on single pass of the starting reaction gas mixture through the overall fixed catalyst bed,

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the acrolein conversion is greater than or equal to 90 mol % and the selectivity of acrylic acid formation, based on acrolein converted, is greater than or equal to 90 mol %, the chronological sequence in which the starting reaction gas mixture flows through the reaction zones corresponding to the alphabetic sequence of the reaction zones, wherein

a) the hourly space velocity of the acrolein contained in the starting reaction gas mixture on over the fixed catalyst bed is greter than or equal to 145 l (STP) of acrolein/l of fixed catalyst bed h and greater than or equal to 70 l (STP) of acrolein/l of fixed catalyst bedh,

b) the volume-specific activity of the fixed catalyst bed is either constant or increases at least once in the flow direction of the reaction gas mixture over the fixed catalyst bed, and

c) the difference $T^{\max A} - T^{\max B}$, determined from the highest temperature $T^{\max A}$ which the reaction gas mixture has within the reaction zone A and the highest temperature $T^{\max B}$ which the reaction gas mixture has within reaction zone B is greater than or equal to 0 °C. See claim 1.

Unverricht teaches a process for the catalytic gas-phase oxidation of acrolein to acrylic acid, in which a reaction gas starting mixture comprising acrolein, molecular oxygen and at least one inert gas, at least 20% by volume of which consists of molecular nitrogen, and containing the molecular oxygen and the acrolein in a molar ratio $O_2 : C_3H_4O$ greater than or equal to 0.5 is passed, at elevated temperatures, over a fixed-bed catalyst, whose active material is at least one molybdenum- and vanadium-containing multimetal oxide, in such a way

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that the acrolein conversion in a single pass is greater than or equal to 90 mol % and the associated selectivity of the acrylic acid formation is greater than or equal to 90 mol %, wherein

a) the loading of the fixed-bed catalyst where the acrolein contained in the reaction gas starting mixture is ≥ 150 g (s.t.p.) of acrolein per l of catalyst bed per h,

b) the fixed-bed catalyst consists of a catalyst bed arranged in two spatially successive reaction zones A, B, the temperature of the reaction zone A being from 230 to 270 °C and the temperature of the reaction zone B being from 250 to 300 °C and at the same time being at least 5°C. above the temperature of the reaction zone A,

c) the reaction gas starting mixture flows first through the reaction zone A and then through the reaction zone B and

d) the reaction zone A extends to an acrolein conversion of from 55 to 85 mol %.

See column 2, lines 32-58.

Unverricht fails to specifically teach that the difference $T^{\max A} - T^{\max B}$, determined from the highest temperature $T^{\max A}$ which the reaction gas mixture has within the reaction zone A and the highest temperature $T^{\max B}$ which the reaction gas mixture has within reaction zone B is greater than or equal to 0 °C. However, absent any objective evidence to the contrary, one of ordinary skill would expect that this feature is a necessary aspect of the procedure disclosed in Unverricht.

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Nonetheless the examiner joins Lonzetta. In this regard, Lonzetta teaches process for preparing (meth)acrylic acid from a reactive hydrocarbon.

Specifically, Lonzetta teaches that a first heat transfer zone, corresponding to the oxidation of propylene to acrolein, is maintained at a temperature of 250 to 450, preferably 280 to 380C and a second heat transfer zone, corresponding to the oxidation of acrolein to acrylic acid is maintained at a temperature of 220 to 450, preferably 240 to 360 C.

Therefore, one of ordinary skill would have been motivated to modify the disclosure of Unverricht to include a feature wherein the difference $T^{\max A} - T^{\max B}$, determined from the highest temperature $T^{\max A}$ which the reaction gas mixture has within the reaction zone A and the highest temperature $T^{\max B}$ which the reaction gas mixture has within reaction zone B is greater than or equal to 0 C, since Lonzetta teaches that this feature is conventional in acrylic acid preparation.

Therefore claims 1-8 are prima facie obvious since the combination of Unverricht and Lonzetta teach all of the elements of the rejected claims with a reasonable expectation of success.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 1010 (Fed. Cir. 1993); *In re*

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Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/784778 (copending application). Although the conflicting claims are not identical, they are not patentably distinct from each other because although the claims of the copending application are for the oxidation of propene to acrolein, one of ordinary skill would expect that at least a portion of the acrolein would be oxidized to acrylic acid, as recited in the claims of the captioned application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 10/784,825 (copending application). Although the conflicting claims are not identical, they are not patentably distinct from each other because Although the claims of the copending application are for the oxidation of propene to acrylic acid, one of ordinary skill would recognize that this process also

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necessarily include the partial oxidation of acrolein to acrylic acid, as is recited in the claims of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-8 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/799754 (copending application). Although the conflicting claims are not identical, they are not patentably distinct from each other because the conflicting claims anticipate the claims of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-19 of copending Application No. 10/803897. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application anticipate the rejected claims of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/808282. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application anticipate the rejected claims of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

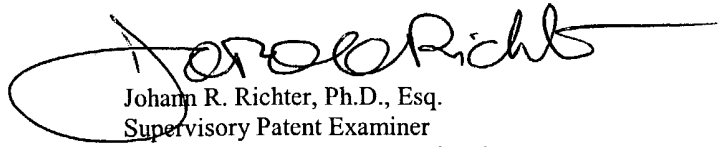
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday-Friday (alternate).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

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